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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/525,320	02/22/2005	Marco Polverari	533-PCT/US	5346

26031 7590 08/22/2007

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EXAMINER	
CORDRAY, DENNIS R	
ART UNIT	**PAPER NUMBER**
1731	

MAIL DATE	DELIVERY MODE
08/22/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/525,320	POLVERARI ET AL.	
	Examiner	Art Unit	
	Dennis Cordray	1731	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-12 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-12 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 22 February 2005 is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date 2/22/2005.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites the limitation "the paper sheet" in Claim 1. There is insufficient antecedent basis for this limitation in the claim.

Claims 1 and 6 recite "viscosities in water at 1%" without further defining the limitation "1%." For instance, is the measurement at 1% polymer concentration in water, is the polymer measured in an aqueous 1% salt solution, or does the 1% refer to some other parameter? The claims additionally fail to recite the conditions under which the viscosity is measured. Since viscosity is a function of at least temperature and frequently of shear rate, the claims do not provide sufficient information for one skilled in the art to assess their scope.

The remaining claims depend from and thus inherits the indefiniteness of Claims 1 or 6.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and

the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-9 and 11-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over De Witt (5516405) in view of Messner et al (5480934).

De Witt discloses a papermaking furnish comprising fillers; 0.01% to 1%, or 0.1 to 10 kg/ton based on the dry weight of the fibers, of a cationic polymeric fixative, and a retention system of 40 to 300 g/ton of dry fibers of a polyethylene oxide and phenol-formaldehyde resin in a ratio of 1:1 to 3:1 phenol-formaldehyde resin to polyethylene oxide, or 0.12 to 0.9 kg/ton of dry fibers. (Abs; col 1, lines 39-67). The amounts of the cationic polymer, polyethylene oxide and phenolic resin added significantly overlay the claimed ranges, thus are present in the claimed ratios with one another. Suitable filers include calcium carbonate, clay, titanium dioxide and silicates (col 2, lines 29-31).

De Witt discloses a method of improving retention in a papermaking slurry comprising adding the cationic polymeric fixative to the furnish between the machine chest and the last screens (last point of shear) (col 2, lines 38-41, Fig 3, items 12, 12A and 12B). The phenol formaldehyde resin is added at the fan pump or before the screens (col 2, lines 51-53, also refer to Fig 3). The polyethylene oxide is added after the screening operations and before the slurry is applied to the forming wire (col 2, lines 54-56, Fig 3, item 14). Referring the Figure 3, De Witt discloses addition of the cationic polymer before or after the phenol formaldehyde resin when the phenol formaldehyde resin is added at the fan pump (Fig 3, items 12 and 12A), or at the same point of addition when the phenol formaldehyde resin is added before the screens (Fig 3, item 12A). The filler is normally added at the fan pump and the cationic polymer is normally

added after the filler (col 2, lines 35-41), thus the filler is pretreated with the cationic polymer before the addition of polyethylene oxide.

De Witt does not disclose the use of a liquid, aqueous, solventless dispersion of a cationic polymer, without oil phase, having the claimed viscosity, charge density and solids content.

Messner et al discloses an aqueous, solventless dispersion of a cationic polymer, without oil phase for use as a flocculent or retention agent in a papermaking process. The absence of organic solvents or oil reduces the flammability, improves safe handling and provides for ecologically safe use of the polymer dispersion (Abs; col 1, lines 17-21; col 2,lines 40-66; col 9, lines 32-39). The polymers comprise from 70-99% of a water-soluble monomer (a1), which, in some embodiments, is a quaternary ammonium monomer, thus the polymers have the claimed cationic charge density (col 3, lines 1-2; col 4, lines 1-3 and 24-56). The viscosity of a 1% aqueous dispersion of the polymer is within the claimed range (col 10, line 14 to col 11, line 57; Examples 1-5). The solids content of the polymer dispersion made in Example 1 (col 10, lines 15-34), prior to dilution with water to 1% solids for measurement of viscosity, is calculated to be about 33-34%, which overlays the claimed range.

The art of De Witt, Messner et al and the instant invention is analogous as pertaining to cationis polymers used as retention aids In papermaking slurries. It would

have been obvious at the time of the invention to one of ordinary skill in the art to use an aqueous dispersion of a cationic polymer having no organic solvent as the cationic polymer in the process of De Witt in view of Messner et al to provide for safer operation by use of a polymer additive with lower flammability and for ecologically safe use.

Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over De Witt in view of Messner et al and further in view of Fallon (571380).

De Witt and Messner et al do not disclose adding a cationic polymer after the polyethylene oxide and phenol-formaldehyde resin and after the last point of shear.

Fallon discloses a process of improving retention in a papermaking slurry comprising adding a cationic polymer to the slurry as a single retention aid after the last point of high shear and before formation of the paper to achieve a balance of retention and formation (Abs; col 4, line 61 to col 5, line 8). The polymer has a charge density of at least 3.2 or 3.5 equivalents per kg, which corresponds to a charge density of slightly less than 50 mole percent (col 3, line 63 to col 4,line 11).

"It is prima facie obvious to combine two compositions each of which is taught by the prior art to be useful for the same purpose, in order to form a third composition to be used for the very same purpose... [T]he idea of combining them flows logically from their having been individually taught in the prior art." In re Kerkhoven, 626 F.2d 846, 850, 205 USPQ 1069, 1072 (CCPA 1980). Since the combination of polyethylene oxide and phenol-formaldehyde resin along with a cationic fixing agent and a cationic polymer added after the last shear stage have both been taught in prior art to increase retention,

it would have been obvious to one of ordinary skill in the art to combine the two processes and to add a cationic polymer after the last point of high shear absent evidence showing unexpected advantages derived therefrom. Adding the cationic polymer after the polyethylene oxide would also have been obvious as a functionally equivalent option.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dennis Cordray whose telephone number is 571-272-8244. The examiner can normally be reached on M-F, 7:30-4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on 571-272-1189. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

DRC

Primary Examiner